

## Pycnogonida of the western Pacific islands, XIII. Collections from Indonesia, Melanesia, and Micronesia

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*Abstract.*—Twenty nine species are reported in collections from Java and Sunda Strait in Indonesia, Papua New Guinea and Fiji in Melanesia, and from three island groups in the Caroline Islands, Micronesia. Current distribution for each species is given along with remarks on the specimens where pertinent. Three new species are described: *Achelia bullosa*, *Tanystylum papuensis*, and *Anoplodactylus brochus*. Each new species is illustrated and compared with congeners.

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This report on the little known pycnogonids of western Pacific islands contains specimens from several collecting efforts made on the shores of Indonesia in the Sunda Straits and Java, in Melanesia at Papua New Guinea (PNG), and the Fiji Islands, and from Yap, Chuuk (Truk), and Pohnpei (Ponape) Islands of the Carolines in Micronesia. Collections of marine specimens of any kind from these localities are scarce because many of the best collecting areas in these islands and many of the islands themselves are difficult to reach. Collections are often more difficult to make and assemble because of lack of transport to and within the islands. Because of their often rough terrain or widely scattered localities, some of these collecting sites can only be approached by boat which contributes to the difficulties of collecting.

These small collections include 29 species, most known from surrounding localities, some known from within the island groups themselves, and 3 new species. The new species are: *Achelia bullosa*, *Tanystylum papuensis*, and *Anoplodactylus brochus*, all from the shores of Papua New Guinea. Distributions are given for all species and the new species are described, illustrated,

and compared with others having similar characters.

There are no reports which treat exclusively shallow-water pycnogonids of any of these islands groups. There are a few short reports which include one or a few species from these islands and several monographs treating deep-sea species from surrounding waters. A few reports include some pycnogonid fauna of New Guinea but only as part of a broader geographic context, an expedition's results, or a set of discrete collections presented together as a geographic unit. These are Stock (1968) on the collections of the International Indian Ocean Expeditions, Stock's (1961) single new species report, and his (Stock 1994) recent paper on the geographic area treated in part by this report. Others include the benchmark monograph by Loman (1908) on the Siboga Expedition collections of Indonesia, and the species from the nearby Torres Straits enumerated by Carpenter (1892, 1893). Müller (1990b) greatly expanded our knowledge of Fijian pycnogonida and his (1992a) Malaysian report contributed to knowledge of the fauna in that little known region. These vast island groups are otherwise rarely mentioned in other pycnogonid literature.

## Systematics

Family Ammotheidae Dohrn, 1881

Genus *Achelia* Hodge, 1864

*Achelia assimilis* (Haswell, 1885)

*Ammothea assimilis* Haswell, 1885:1026–1027, pl. LIV, figs. 5–9.

*Achelia assimilis*.—Child, 1988b:2; 1990:312–313; 1991:138.—Stock, 1994:32–33 [literature].

*Material examined*.—Indonesia: Sunda Strait, W Java, Pulau Sebuko 05°53'S, 105°31'E, on shallow algae, coll. Taylor, 19 Oct 1938 (1 ♂, 1 ♀ ovig., 2 ♀, 1 Juv.).

Papua New Guinea (PNG): Bismarck Sea: Madang, NW margin of Paddock Reef, rubble in 3 m, coll. Thomas & Clark, 14 Jan 1989 (1 ♀). Same locality, landward side of Yazı Reef, rubble in 1 m, coll. Thomas & Clark, 15 Jan 1989 (1 ♂).

Fiji: SW Viti Levu Island, rubble and calcareous algae off Votualilai Village beach in 1 m, coll. Child, 28 Jul 1978 (1 ♀).

*Distribution*.—This extremely variable species is found at an increasing number of localities according to recent literature. It has been collected in shallow habitats from the Australian Great Barrier Reef to as far north as the Philippine Islands. Most captures have been in the southwest Pacific Ocean and the southern tip of South America.

*Achelia bullosa*, new species

Fig. 1

*Material examined*.—PNG, Bismark Sea: Madang, patch reef between Gosem Island and Jais Aben Resort, broken coral in 1 m, coll. Thomas & Clark, 13 Jan 1989 (1 ♂ with eggs, holotype, USNM 234711, 1 ♀, paratype, USNM 234712).

*Description*.—Size tiny, leg span 5.25 mm. Trunk extremely compact, almost circular in dorsal outline, integument papillose over most surfaces, anterior two segmentation lines complete, posterior line missing, several other suture lines conspicuous on cephalic segment. Lateral processes con-

tiguous over their lengths, armed with anterodistal and posterodistal tubercles consisting of low papillose mounds, broader than their height and armed with tiny distal seta each. Trunk anterior corners each with similar low setose mound. Ocular tubercle slightly broader at base than tall, conspicuously papillose, eyes small, anterior pair slightly larger than posterior pair, all darkly pigmented. Abdomen moderately short, extending only to half length of first coxae of fourth leg pair, carried horizontally with slight dorsal curve distally, armed with few short distal setae.

Proboscis moderately short, a swollen truncate cone half length of trunk, oral surface flat, lips moderately large, not protruding.

Chelifores slender, only about three times longer than maximum diameters. Scape with large dorsodistal mound tubercle equal to width of segment, armed with four–five distal setae. Chela tiny, bulbous, without trace of fingers but with distal cleft, armed with single distal seta.

Palps eight-segmented, short, only slightly longer than proboscis, massive and tuberculate. First segment extremely broad, wider than twice its length. Second segment only as long as its width, armed with dorsolateral ectal tubercle bearing distal seta. Third segment almost twice as broad as its length, armed with similar tubercle as that of second segment but larger, armed with two distal setae. Fourth segment longest, twice its diameter, armed with low laterodistal tubercle bearing two distal setae. Terminal four segments each increasingly smaller and narrower, each armed with few short ventrodistal and laterodistal setae.

Ovigers typical of genus, fourth and fifth segments subequal, armed with few short ectal setae. Strigilis sixth segment with several recurved spines and two–three setae, seventh and eighth segments with two ectal setae and two endal denticulate spines each, ninth and tenth segments without setae but with two denticulate spines each. Denticu-

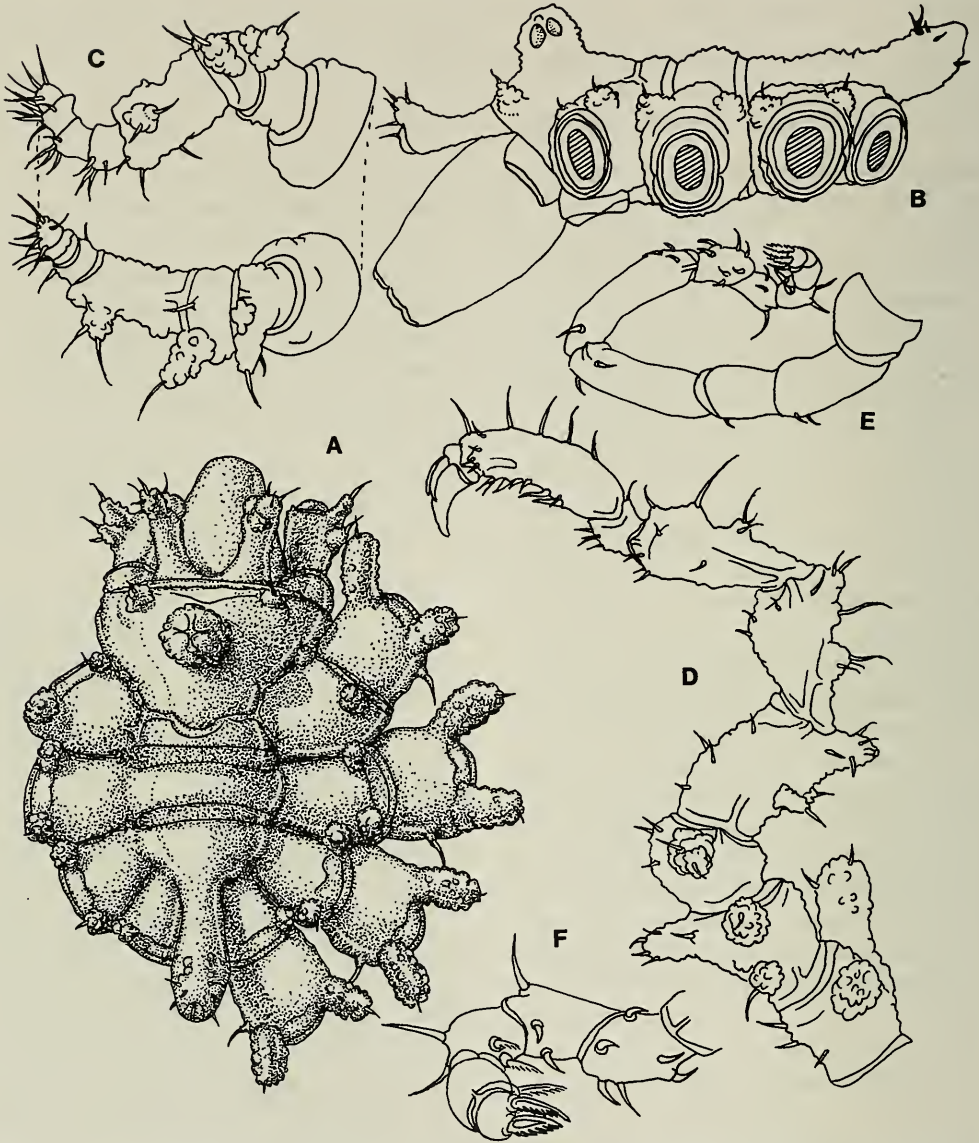


Fig. 1. *Achelia bullosa*, new species. A, trunk, dorsal view; B, trunk, lateral view; C, palp, lateral view above, dorsal view below; D, third leg; E, oviger; F, oviger tip, enlarged.

late spines with eight–nine serrations per side.

Leg segments very short, tuberculate, moderately setose. First coxae the longest segments (measured to tubercle tips) bearing pair of large laterodistal tubercles almost as long as segment diameter, conspicuously papillose, armed with one–two distal setae each. Second coxae with paired short

lateral tubercles bearing single short setae and single ventrodistal tubercle not as long as segment diameter, bearing sex pore on third and fourth legs, armed with several short setae. Third coxae shorter, with single laterodistal tubercles bearing 2–3 short distal setae. Femora the longest major segments, with slender mediolateral tubercles half as long as segment diameter, armed

with single short seta each, and larger dorsodistal tubercle bearing several short setae and tip of cement gland tube. Tibiae of almost equal length, each bearing two dorsal bumps with one–three moderately long setae, also armed with few laterodistal and ventrodistal short setae. Tarsus short, with one ectal and four–five endal setae. Propodus inflated, moderately curved, armed with two moderately long heel spines plus a single distal spine and several sole setae, five–six dorsal setae and several short distal setae. Claw moderately short, robust, auxiliaries 0.6 as long as main claw.

Female: slightly larger in all measurements than the male except for smaller oviger. Oviger bearing single denticulate spines on all except terminal segment which bears two. Leg and lateral process tubercles slightly smaller than those of male. Sex pores on all second coxae.

*Measurements of holotype in mm.*—Trunk length (chelifore insertion to tip 4th lateral processes), 0.84; trunk width (across 2nd lateral processes), 0.72; proboscis length, 0.42; abdomen length, 0.27; 3rd leg (to tubercle tips), coxa 1, 0.37; coxa 2, 0.3; coxa 3, 0.19; femur, 0.32; tibia 1, 0.29; tibia 2, 0.3; tarsus, 0.08; propodus, 0.31; claw, 0.12.

*Distribution.*—Known only from the type-locality, a patch reef off Gosem Island, Madang, Papua New Guinea, in 1 m.

*Etymology.*—The name given to this species (Latin: *bulla*; a knob, boss, or bubble, with the suffix *osa*; very) refers to the extremely tuberculate and knobby morphology of these specimens.

*Remarks.*—No other known species of *Achelia* has the blunt lateral tuberculation of this species, particularly those of the palps which are unique in their placement. There are several species which have the short major leg segments of this species and tuberculation which is similar to this, but none have the multiple lateral tubercles of the palps found in this species. A species such as *A. shepherdii* Stock, 1973, fits the description of one of the several species

above. Its tuberculation is somewhat similar to that of this species, but its palps have no lateral tubercles and its proboscis is barrel-shaped and much larger than that of *A. bulbosa*.

*Achelia deodata* Müller, 1990

*Achelia deodata* Müller, 1990b:103–105, figs. 1–6.—Stock, 1994:33.

*Material examined.*—Caroline Islands: Pohnpei (Ponape) Island, E side near Mant Passage, 07°01'N, 158°18'E, rubble with algae in 0–1 m, coll. Child, Barnard & Child, Jr., 5 Jul 1986 (1 ♂, 1 Juv.).

*Distribution.*—This recently described species had been known only from the western Indian Ocean in 0–8 m. The two above specimens greatly extend its range into the Pacific for the first time.

*Remarks.*—These specimens are more like Müller's species than any other Indo-Pacific species in this confusingly variable group. The tubercles of its lateral processes and appendages seem to be the key toward differentiating several of these closely related species. Those of this male are closest to Müller's type figures and description, with a low to tiny tubercle on each lateral process and larger dorsolateral tubercles on the first coxae. The tubercles of this male are placed in the same lateral position but are narrower and longer than those of the type. The legs of this male are slightly longer and appear narrower than those of Müller's type but the femoral cement gland is exactly the same in this male and the type male.

Genus *Ammothella* Verrill, 1900

*Ammothella alcalai* Child, 1988

*Ammothella alcalai* Child, 1988a:2–4, fig. 1.—Stock, 1994:26–27.

*Material examined.*—PNG: Madang, Paddock Reef near Gosem Island, sponge, rubble and algae in 3 m, coll. Thomas & Clark, 8 Jan 1989 (1 Juv.). Madang, Paddock Reef, second reef past Gosem, spong-

es, ascidians and rubble in 2 m, coll. Thomas & Clark, 9 Jan 1989 (1 ♀).

*Distribution*.—This species was recently described from localities in the southern Philippines, in 0–3 meters. It has been taken more recently in Indonesia in 0.5 m. It is new to Papua New Guinea.

*Remarks*.—Juveniles of several genera, in this family where many species bear dorsal tubercles, have generally larger tubercles than adults of the same species. This fact also holds true with this species where the lateral process tubercles are as slender but longer than in the adult. I therefore have little hesitation in assigning the juvenile above to *A. alcalai*. Also, there are no lateral tubercles on the anterior rim of the cephalic segment of the juvenile or the adult while most of the better known species from this vicinity have these rather typical rim tubercles.

*Ammothella indica* Stock, 1954

*Ammothella indica* Stock, 1954b:113–119, figs. 54–55, 56c, 57a–57c.—Utinomi, 1971:331 [literature].—Nakamura & Child, 1983: 18–19.—Kim, 1986:5, fig. 3.—Kim & Hong, 1986:48.—Nakamura, 1987:26–27, pls. 22–23.—Hong & Kim, 1987:143–144.—Child, 1988a:5; 1988b: 51.—Nakamura & Child, 1991:7.—Müller, 1992a:156.—Stock, 1994:27.

*Material examined*.—Indonesia: Java, Pulau Kelor, 06°02'S, 108°45'E, algae on rubble, coll. Taylor, 26 Sep 1938 (1 ♂, 1 ♀, 1 juv.). Java, Kepulauan Seribu, 05°36'S, 106°33'E, rubble and algae, coll. Taylor, 5 Oct 1938 (1 Juv.). Java, W end. Ujung Kulon, Menandjung Peninsula, 06°45'S, 105°20'E, algae, coll. Taylor, 18 Oct 1938 (1 ♂).

*Distribution*.—This is a moderately common Indo-West Pacific species collected in 0–30 m. It was previously known from near the above localities of Java in the Sunda Strait.

*Ammothella stauromata* Child, 1982

*Ammothella stauromata* Child, 1982b:271–273, fig. 1; 1988a:5, 7.—Nakamura & Child, 1988b: 809–810.—Müller, 1989: 125; 1990a:66; 1990b:106.—Child, 1990:316.—Stock, 1994:29.

*Material examined*.—PNG: Madang, reef slope below seawall next to ship channel at Madang Hotel, rubble and calcareous algae in 1–1.5 m, coll. Child, 30 Jul 1980 (1 Juv, 1 larva).

*Distribution*.—As more collecting records are reported from the western Pacific, this species is found to have a wide distribution which increases as the fauna of many far flung localities are reported. The species has been taken from the Great Barrier Reef of Australia, the Philippines, Samoa, Society Islands, Fiji Islands, and the Marshall Islands. It has never been reported from depths below 6 m. This record marks its first capture in Papua New Guinea.

*Remarks*.—There is only one other species known in the western Pacific, *Ammothella thetidis* Clark (1963), which has dorsomedian trunk tubercles, and it has many characters which differ from this species. These differences were previously discussed by Child (1990:316).

*Ammothella* species indeterminate

*Material examined*.—Indonesia: Bali, Sanur Beach, near Cape Serangan, 08°42.3'S, 115°15.8'E, 0.3 m, coll. Barnard, 12 Jul 1976 (1 juv.).

PNG: Madang, Hansa Bay, Laing Island, coral rubble, lagoon reef in 1.0–1.5 m, coll. Child, 31 Jul 1980 (1 juv.).

Genus *Ascorhynchus* Sars, 1877

*Ascorhynchus melwardi* Flynn, 1929

*Ascorhynchus melwardi* Flynn, 1929:252–256, figs. 1–3.—Stock, 1953b:304 [key]; 1954b:128–132, figs. 64–65; 1968:8.

*Material examined*.—Indonesia: Arafura Sea, Aru Archipelago, W of Wasir Island,

sand & rubble in 33–40 m, coll. Western Australian Museum, 15 May 1970 (1 ♀).

*Distribution*.—This shallow water species is restricted to an area from Singapore and the Greater Sunda Islands to Cape York in Northern Queensland, Australia, from intertidal depths to 40 m. There have been relatively few specimens collected anywhere.

*Ascorhynchus minutum* Hoek, 1881

*Ascorhynchus minutum* Hoek, 1881:55–57, pl. VI, figs. 10–16.—Loman, 1908:33.—Stock, 1953b:305 [key]; 1954b:121–124, figs. 57d–57h.—Clark, 1963:61.—Child, 1975:26.

*Ascorhynchus auchenicus*.—Calman, 1922:199–203 (part).

*Material examined*.—Indonesia: Banda Sea, Haruku Island, E of Ambon, sand and rubble, 03°36'S, 128°24'E, 144–157 m, coll. Western Australian Museum, 30 May 1970 (1 chelate juvenile).

*Distribution*.—This is another fairly rare species. It has been taken in New South Wales and Queensland along with Western Australia, and previously in the Banda Sea in 4–157 m.

*Remarks*.—This juvenile agrees with figures of the type specimen except in the following characters. Tubercles are lacking middorsally as could be expected in a juvenile, and a bulge replaces the tubercle on the second coxae. The lateral process and first coxae tubercles are as long as their segment diameters and the abdomen is slightly longer, extending to the tip of the fourth coxae. These differences are attributable to this being a juvenile specimen.

*Ascorhynchus ramipes* (Böhm, 1879)

*Gnamptorhynchus ramipes* Böhm, 1879b:56–59.

*Ascorhynchus ramipes*.—Utinomi, 1971:332–333 [literature].—Nakamura & Child, 1983:29.—Kim, 1986:7, fig. 4.—Kim & Hong, 1986:50.—Nakamura, 1987:31–32,

pl. 28.—Hong & Kim, 1987:146.—Nakamura & Child, 1991:8.—Miyazaki & Hirose, 1993:18–21.

*Ascorhynchus latus* Calman, 1923:270, figs. 2–3.—Stock, 1953b:304–305 [key].

*Ascorhynchus latum*.—Stock, 1954b:128, figs. 63a–63c.—Müller, 1990b:106.

*Material examined*.—Indonesia: E Java, N of Bantenan Peninsula, W of Bali, 08°34'S, 114°36'E, depth unrecorded, coll. U.N.F.A.O. survey, 27 Jun 1971 (1 ♂, 1 ♀). (Hydrographic chart depths at these coordinates are about 165–183 m).

*Distribution*.—Specimens of this species have been found predominantly at Kyushu and Honshu, Japan, and Korea, but they have also been taken in the Gulf of Thailand and the Gulf of Manaar between India and Sri Lanka. It has the rather wide but shallow depth range of 3–200 m.

*Remarks*.—These specimens are remarkable for their size and on first superficial examination, were almost identified as a new species. These two are much longer (3–4 times) than the usual *A. ramipes* and it is possible that they could be a new species except that almost all characters agree with those of *A. ramipes*. The male leg span is 91 mm and the female's almost 100 mm, and they can be compared with either *A. ramipes* or *A. auchenicum* in a number of characters.

The conspicuous lateral process and first coxae tubercles differ from either of the two species: they are proportionally larger in diameter, more robust, and those of the first coxae are curved in a distal direction. The trunk and coxae tubercles are much more reduced in proportion to specimen size in northern Pacific specimens. The ocular tubercle is also much taller than the typical *A. ramipes*, and there are many more cement gland pores per leg. The femora have 18–24 dorsolateral pores and the first tibiae, usually without a cement gland, have 9–11 pores over a proximal gland. In general, the diagnostic characters used to describe *A. ramipes* are all present in these specimens, but

it appears as though geographic separation is placing this population of a common species in position to become a much larger new species in the future.

These specimens have some similarities to *A. auchenicum* (Slater), an endemic Japanese species. They are at least 3 times larger than any specimen of *A. auchenicum* whose size is given in literature or that I have examined. But, the lateral process and first coxae tubercles are more like those of *A. auchenicum* than those of *A. ramipes*. Many other characters of these two specimens such as abdomen and chelifore length, placement of ocular tubercle in relation to oviger bases, and lack of a dorsal tubercle on the second coxae are more like *A. ramipes*. The greatest difference is in the distal segments of the first pair of legs which are quite different from those of *A. auchenicum*. There is no claw on the first leg pair in *A. ramipes* and in these specimens, and the tarsus is much longer than those of the posterior six legs. There is no explanation for the giant size of these specimens except that the two suggest a possible new species or at least a subspecies in the making.

Genus *Eurycyde* Schiödte, 1857  
*Eurycyde setosa* Child, 1988

*Eurycyde setosa* Child, 1988a:8–10, fig. 3; 1990:316–317.—Müller, 1992a:156, figs. 1–5.—Stock, 1994:21.

*Material examined*.—PNG: Madang, Paddock Reef, rubble in 3 m, coll. Thomas & Clark, 10 Jan 1989 (1 ♂). Madang, patch reef between Gosem Island and Jais Aben Resort, broken coral rubble in 1 m, coll. Thomas & Clark, 13 Jan 1989 (1 ♂).

*Distribution*.—This is another species with a growing distributional knowledge from the literature. It was described from shallows of the northern Philippines, and has been found on the northern end of the Great Barrier Reef, Australia, the Gulf of Siam, Malaysia, and near Port Moresby on the south side of Papua New Guinea. This

record extends it to the north side of PNG in equally shallow water.

*Remarks*.—These specimens are very close to the type, also a male. They appear to bear fewer setae on the first coxae tubercles than the type specimen but the first coxae tubercles of the male collected on 13 Jan are longer than those of the type and are curved, unlike those of the type. The lateral process tubercles of the 10 Jan specimen are smaller and decrease in size from anterior to posterior but those of the 14 Jan specimen are larger than those of the type and the lateral processes of this specimen are farther apart. These variations appear to be age-related and well within the moderate variation known among species in this closely allied genus. The distinguishing character of this species is that of the setose first coxae tubercles which on most species in this genus bear long spines with setules or, in a few instances, no spines at all.

Genus *Tanystylum* Miers, 1877  
*Tanystylum bredini* Child, 1970

*Tanystylum bredini* Child, 1970:296–299, fig. 3; 1977:441; 1988b:52.—Müller, 1989:125, figs. 11–21; 1990a:67, figs. 7–15; 1992a:156, 159, figs. 6–11.—Stock, 1992:92–93; 1994:36–37.

*Material examined*.—Indonesia: W Java, Ujung Kulon, Menang Jung, 06°45'S, 105°20'E, on algae, coll. Taylor, 18 Oct 1938 (1 ♂, 2 ♀, 1 juv.).

*Distribution*.—Another widely distributed Indo-Pacific species, these tiny specimens have been found in tropical localities from Kenya to the Society Islands in 0–7 m. They have been collected previously in Malaysia and Indonesia.

*Tanystylum papuensis*, new species  
Fig. 2

*Material examined*.—PNG: Madang, Paddock Reef, 2nd reef past Gosem Island, sponges & rubble in 2 m, coll. Thomas & Clark, 9 Jan 1989 (1 ♂ with eggs, holotype,

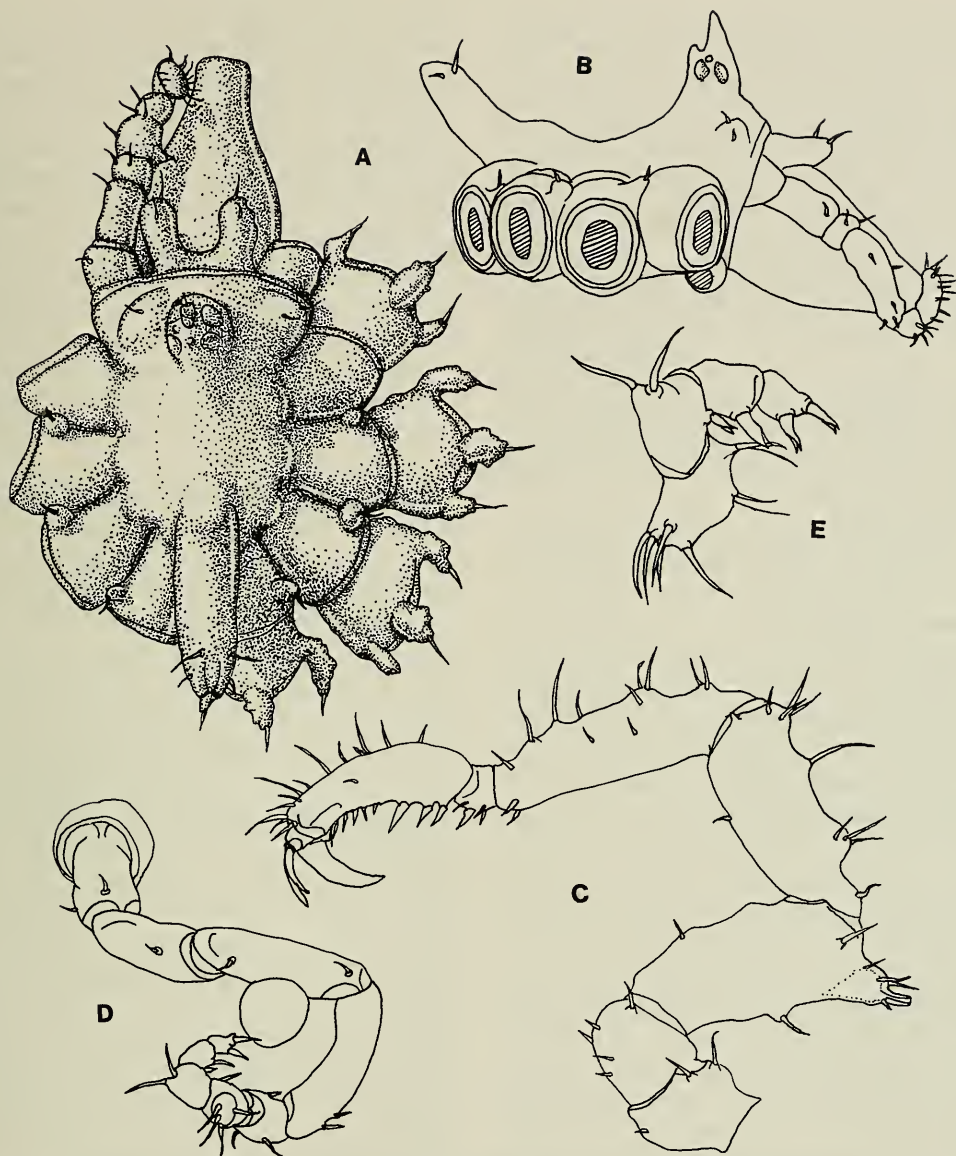


Fig. 2. *Tanystylum papuensis*, new species. A, trunk, dorsal view; B, trunk, lateral view; C, third leg; D, oviger; E, oviger tip, enlarged.

USNM 234714, 2 juv., paratypes, USNM 234715). Madang, Paddock Reef, 40 m off Gosem Island, rubble in 3 m, coll. Thomas & Clark, 7 Jan 1989 (1 ♀, paratype, USNM 234716). Madang, patch reef between Gosem Island and Jais Aben Resort, coral rubble in 1 m, coll. Thomas & Clark, 13 Jan 1989 (1 ♂ with eggs, 1 ♀, 1 Juv, paratypes, USNM 234717).

*Other material.*—PNG: Madang, Yazi Reef, rubble from landward side in 1 m, coll. Thomas & Clark, 15 Jan 1989 (2 ♂ with eggs, 1 ♀).

*Distribution.*—Known only from the vicinity of Madang, PNG.

*Description.*—Size typical or slightly smaller than average; leg span about 7 mm. Trunk circular, unsegmented, glabrous, lat-



eral processes contiguous, armed with short anterodistal tubercle on posterior six legs, each with tiny seta, tubercle missing on first pair. Cephalic segment extending only slightly beyond circular trunk, armed laterally with one–two short setae on swellings. Ocular tubercle on elevated mound, about as tall as wide, eyes small, darkly pigmented, with tall anterior and short posterior apical cones. Proboscis moderately short, inflated in proximal third in lateral view, tapering distally to cylindrical mouth area. Abdomen extending obliquely from basal mound or hump, armed with two pairs of distal setae, the more dorsal pair longer than lateral pair.

Chelifores inflated cylinders, moderately slender, about three times longer than median diameters, armed with two distal setae. Chelae entirely lacking.

Palp of six segments. First and third wider than their length, second only twice as long as diameter, fourth three times longer, second through fourth armed with two–three lateral setae, fourth with fringe of ventrodistal setae. Fifth as long as wide, sixth about three times longer than its diameter, both armed lightly with ventral setae. First to fifth segments combined only as long as proboscis.

Oviger with lateral seventh segment apophysis armed with four long setae. Second through sixth segments armed with four–five randomly placed short setae. Strigilis seventh with recurved endal spine, eighth with two ectal setae and one endal distally bifurcate spine, ninth with similar bifurcate spine, and tenth tiny segment with two similar spines.

Legs typical, robust, with dorsal setose swellings on main segments. Femoral cement gland in broad dorsodistal tubercle with short tube at tip. Femur with tiny mid-dorsal tubercle bearing seta. Femur and first tibia subequal, second tibia slightly longer. Tarsus very short, with one sole spine and few setae. Propodus moderately curved, broader proximally, tapering distally, with three major heel spines, the largest spine

distally, 5–6 short sole spines, and few short and long setae dorsally. Claw robust, well curved, with stout auxiliaries measuring about 0.6 length of main claw.

Female characters: oviger of ten segments, much smaller than that of male, strigilis spines plain. First coxae tubercles smaller, posterior tubercle only a bump.

*Measurements of male holotype in mm.*—Trunk length, 0.84; trunk width, 0.82; proboscis length, 0.51; abdomen length, 0.29; third leg, coxa 1, 0.21; coxa 2, 0.25; coxa 3, 0.21; femur, 0.56; tibia 1, 0.57; tibia 2, 0.6; tarsus, 0.1; propodus, 0.45; claw, 0.19.

*Etymology.*—The name refers to the collecting locality for this new species.

*Remarks.*—This species resembles a species from the Caribbean, *T. isthmiacum* Stock (1955), and a Pacific Species *T. oculospinosum* Hilton, 1942. With *T. isthmiacum*, it shares a male seventh oviger segment apophysis, the tall ocular tubercle apex and tall abdomen, and the strong tarsal spine. It differs by having six palp segments rather than five, oviger spines without denticulations, taller first coxal tubercles, and smaller lateral process tubercles. The new species differs more from *T. oculospinosum*. *T. papuensis* has a broader proboscis, particularly the distal part, which in *T. oculospinosum* is quite narrow, giving its proboscis a conical shape. The chelifore scapes and first coxae tubercles are much longer in *T. papuensis*, the legs have longer and fewer setae, the propodus is longer and less robust, and the terminal palp segment is longer in relation to its penultimate segment.

Family Austrodecidae Stock, 1954

Genus *Austrodecus* Hodgson, 1907

*Austrodecus stocki* Child, 1988

*Austrodecus stocki* Child, 1988b:54–55, fig. 1.—Stock, 1994:42–43, fig. 15.

*Material examined.*—PNG, Bismark Sea, Madang, reef slope below seawall on deep ship channel, in rubble and calcareous algae

in 1–2 m, coll. Child, 30 Jul 1980 (1 sub-adult ♀).

*Distribution*.—The female holotype was collected on Aldabra Atoll, Indian Ocean. Stock listed another female from the Mozambique Channel in 62 m. This is the third known specimen and the first collected from southwestern Pacific waters. This species is widely distributed but apparently rare or elusive.

*Remarks*.—The male characters of this species remain unknown.

Family Rhynchothoracidae, Thompson,  
1909

Genus *Rhynchothorax* Costa, 1864

*Rhynchothorax orientalis* Child, 1988

*Rhynchothorax orientalis* Child, 1988a:28–29, fig. 12.—Stock, 1991:227.

*Material examined*.—PNG: Madang, Kranket Island, seaward reef crest, rubble in 4 m, coll. Thomas & Clark, 11 Jan 1989 (1 chelate juvenile).

*Distribution*.—This species was only known from two places in the Philippines in 1–3 m ad 92–97 m. Its distribution is herein extended to Papua New Guinea, and to 4 m.

*Remarks*.—This specimen has the three-segmented slender chelifores typical of other species in the juvenile stage. The chelae are tiny scissor-shaped appendages and are apparently not functional. The bifurcate dorsomedian trunk tubercles of the adult are found here in the juvenile, but the anterior tubercle of the ocular segment is not nearly so long. This is probably typical of juveniles. The specimen otherwise agrees well with the type.

Family Phoxichilidiidae, Sars, 1891

Genus *Anoplodactylus* Wilson, 1878

*Anoplodactylus batangensis* (Helfer, 1938)

*Pycnosoma batangense* Helfer, 1938:174–176, fig. 6a–c.

*Anoplodactylus batangensis*.—Stock, 1968:54 [older literature].—Child, 1992:41–42

[recent literature], fig. 18.—Müller, 1992b:47.—Stock, 1994:54.

*Material examined*.—PNG: Bootless Inlet, near Port Moresby, Manunouha (Lion) Island reef, rubble with algae in 1–2 m, coll. Child, 26 Jul 1980 (2 ♀).

*Distribution*.—This easily recognized species has a pantropical distribution in shallow depths. It has been found in Indonesia and eastern Australia and could be expected in PNG.

*Remarks*.—The extreme taper and up-curve of this species' proboscis help to differentiate it from any other member of this unwieldy genus of more than 120 species.

*Anoplodactylus brochus*, new species

Fig. 3

*Material examined*.—PNG: Madang, Paddock Reef, rubble from NW margin in 3 m, coll. Thomas & Clark, 14 Jan 1989 (1 ♂ with eggs, holotype, USNM 234713, 3 ♂ with eggs, paratypes, USNM 234714).

*Distribution*.—Known only from the type locality, Madang, Papua New Guinea, in 3 m.

*Description*.—Extremely tiny species, leg span only 3.8 mm. Trunk unsegmented, lateral processes separated by as much as their diameters distally, 1.5 times as long as their diameters, each armed with small low dorso-distal tubercle bearing seta on anterior 6 processes, lacking seta on posterior pair. Palp buds conspicuous broad tubercles in dorsal view. Neck well elevated above proboscis, bearing tall ocular tubercle at extreme anterior. Eyes large, forming distal bulge in ocular tubercle, with low rounded apical tubercle distally. Proboscis cylindrical, slightly constricted at median circumference and upcurved just distal to base, lips rounded. Abdomen moderately tall, erect, straight, with 4 tiny distal setae.

Chelifore scapes slender, not as long as proboscis, slightly downcurved distally, armed with single lateral seta and single dorso-distal seta. Chelae small, overhang proboscis. Palm almost cylindrical, only slightly in-

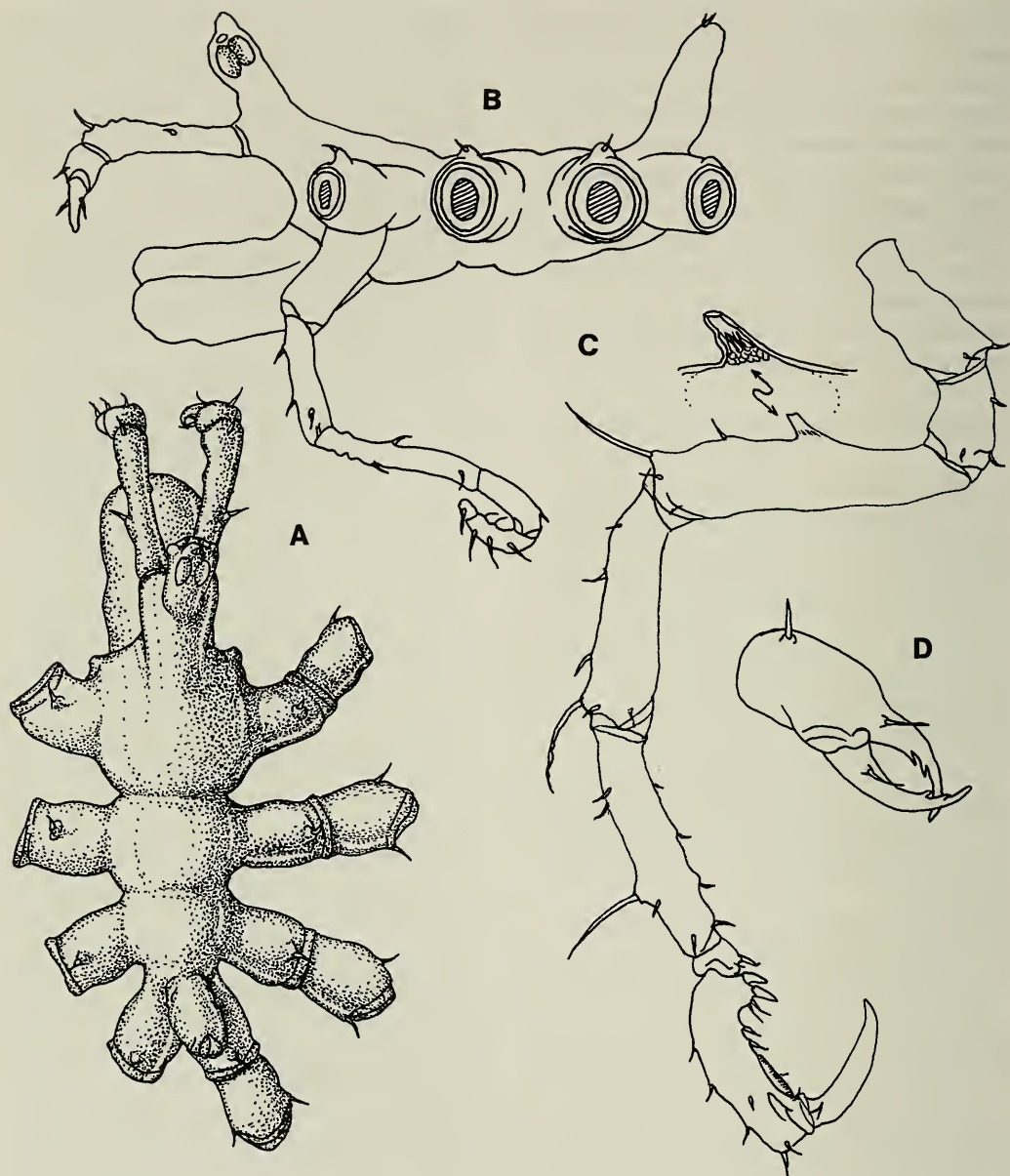


Fig. 3. *Anoplodactylus brochus*, new species. A, trunk, dorsal view; B, trunk, lateral view; C, third leg with enlargement of cement gland tube; D, chela, enlarged.

flated, armed with 2–3 short setae, 1 at base of immovable finger, 1 laterally on movable finger. Fingers only as long as palms, well curved with distal overlap, armed with 2 tiny slender teeth pointed distally.

Ovigers moderately short, first segment long, as long as second. Third the longest,

but little longer than second. Second through fourth segments armed with few short lateral setae not in rows. Fifth segment with 3 longer lateral seta on each side. Sixth segment a tiny cone with 1–2 short setae. Fourth segment slightly longer than fifth and sixth combined.

Legs moderately short, armed with few setae and long dorsodistal spine on each major segment. Femur the longest segment, cement gland outlet placed at midlength dorsally. Outlet a moderately short tapering tube, less than half segment diameter, angled distally. Tibiae subequal, only about 0.75 length of femur. Tarsus very short, propodus with marked heel bearing 2 stout spines and 2 distal setae, sole with 2 curved spines before lamina half sole length. Lamina with tiny lateral setae. Claw robust, well curved, lateral auxiliary claws tiny.

Female characters unknown.

*Measurements of holotype in mm.*—Trunk length (chelifore insertion to tip 4th lateral processes), 0.56; trunk width (across first lateral processes), 0.34; proboscis length, 0.26; abdomen length, 0.15; third leg, coxa 1, 0.12; coxa 2, 0.18; coxa 3, 0.13; femur, 0.35; tibia 1, 0.27 (0.266); tibia 2, 0.27 (0.268); tarsus, 0.04; propodus, 0.21; claw, 0.15.

*Etymology.*—The specific name (Latin: *brochus*, meaning projecting) refers to the small lateral process tubercles of this species, an uncommon but not unique character in this genus.

*Remarks.*—This exceptionally tiny species has no outstanding character with which to separate it from many other plain species in this genus. Very few species are this tiny: *A. minusculus* Clark is comparable but has many basic characters which differ from the specimens in hand such as contiguous lateral processes and an extremely short oviger.

This species is perhaps closest to *A. minutissimus* Stock, 1954. The similarities occur mainly in their trunks which are not segmented. The palp bases are retained and conspicuous in dorsal aspect, an uncommon character in *Anoplodactylus*. The chelifores and ovigers are quite similar and their tiny sizes differ only in small percentages. The differences occur in this species having small setose lateral process tubercles not present in Stock's species, a shorter proboscis in relation to the trunk length, and a

cylindrical abdomen rather than a tapering cone. The legs of each offer more character differences. Those of this species are shorter in each segment, the propodal lamina is shorter, the claw is much shorter and more curved, and the tibiae are subequal. The cement gland offers perhaps the greatest comparative difference. In this species, the truncate conical tube arises from a flat or slightly convex dorsal surface while the shorter truncates cone of *A. minutissimus* arises from a definite swelling of the femoral surface. The combination of its conspicuous palp buds, tiny lateral process tubercles, cement gland tube shape and placement, propodus characters, and tiny size render this new species different from all known species in this genus.

*Anoplodactylus chamorrus* Child, 1983

*Anoplodactylus chamorrus* Child, 1983: 705–707, fig. 3; 1988b:16; 1990:330–331; 1991:143.—Müller, 1992a:164.—Stock, 1994:55, fig. 22c.

*Material examined.*—PNG: Bootless Inlet, Manunouha (Lion) Island reef, rubble & algae in 1–2 m, coll. Child, 26 Jul 1980 (1 ♂).

*Distribution.*—This species was described from Guam and has subsequently been collected in shallow waters of the Philippines, Malaysia, Australia's Great Barrier Reef, and most recently from Papua New Guinea.

*Remarks.*—The proboscis, as Stock (1994) illustrated, has a definite taper from base to tip. The legs of this specimen are slightly more angular and the major segments a little more curved than those of the type. The specimen is otherwise much like it.

*Anoplodactylus digitatus* (Böhm, 1879)

*Phoxichilidium* (*Anoplodactylus*) *digitatum* Böhm, 1879a:184–185, pl. II, figs. 2–2b. *Anoplodactylus digitatus*.—Stock, 1965: 28–29 [synonymy & literature].—Arnaud, 1973:958; 1988:45.—Müller,

1992a:164–166, figs. 18–26.—Stock, 1992:94; 1994:57.

*Anoplodactylus* cf. *digitatus*.—Arnaud, 1974:174.

*Material examined*.—Indonesia: north Sumatra, Lhokseumawe village, fuel dock pilings, 05°10'N, 097°08'E, 0–5 m, coll. D.E. Coleman (California Academy of Sciences), 24 Jan 1975 (3 ♂ with eggs, 1 ♂, 3 ♀, 2 Juv.).

*Distribution*.—This long-known species has been taken in sufficient localities to qualify it as a pantropical/temperate inhabitant. It is known from the Indo-West Pacific, West Indies, and the Mediterranean Sea in mostly shallow to sublittoral depths although one collection reports it from 600 m which is far deeper than its usual habitats.

*Remarks*.—Müller (1992a:164–166, figs. 18–26) gave an excellent description and set of illustrations for this species. There is apparently some variation in the size of the ventral proboscis “alar” processes in the female and in the length of the tubercles of the second coxae sexual pores in both sexes. This is otherwise a morphologically very stable species.

*Anoplodactylus pectinus* Hedgpath, 1948

*Anoplodactylus pectinus* Hedgpath, 1948: 234–236, fig. 34; 1954:427.—Stock, 1955:235, fig. 11; 1974:17.—Arnaud, 1973:955–957.—Child, 1974:500; 1979: 58; 1982a:372–373; 1988a:20.—Stock, 1979:15; 1994:64.—Nakamura & Child, 1988a:662–663.

*Anoplodactylus pectinis* [sic].—Stock, 1975:1050–1052, fig. 41a.

*Material examined*.—Indonesia: Java, Pulau Kelor, 06°02'S, 108°45'E, coll. Taylor, 26 Sep 1938 (1 spec.). Sumatra, Sunda Strait, Cape Tjina, 05°56'S, 104°45'E, coll. Taylor, 6 Oct 1938 (1 ♂, 1 ♀ juv.). Java, SW end, Pulau Deli, algae and sponges, 07°00'S, 105°32'E, coll. Taylor, 5 Oct 1938 (1 ♂, 5 ♀). W Java, Sunda Strait, Tjiko-

neng, 06°04'S, 105°52'E, algae, coll. Taylor, 16 Oct 1938 (1 ♀). Sulawesi, off Ujung Pandang, Pulau Langkai, *Thalassia* bed with coral, 05°02.1'S, 119°05.1'E, 0.5 m, coll. Barnard, 6 Jul 1976 (1 ♂).

PNG: Madang, Hansa Bay, Laing Island, coral rubble, lagoon reef, coll. Child, 1–1.5 m, 31 Jul 1980 (1 ♂ with eggs, 1 Juv.).

Fiji: Viti Levu, E of Suva, reef shallows across from Suva Point, soft corals, 1.5–2 m, coll. Child, 27 Jul 1978 (1 ♂ with eggs, 2 ♂, 2 ♀).

Caroline Islands: Yap Island, 10 m, 27 Oct. 1986 (1 ♂). Chuuk (Truk) Islands, lagoon, islet on outer reef, rubble in 1.0–1.5 m, 07°23.8'N, 151°58.6'E, coll. Child, 2 Jul 1986 (1 Juv.).

*Distribution*.—This species is probably pantropical and has been collected in many Indo-West Pacific localities along with many in Florida and the Caribbean Sea. It is known from the littoral to 33 m. It is new to several of the above localities undoubtedly because shallow marine collections are few and far between from islands of the western Pacific.

*Remarks*.—The serrate major heel spine of this species and its long slender habitus are excellent recognition characters in combination. There have been other (unrelated) species recently described which are long and slender and have serrate heel spines: most notably, *A. tenuicarpus* Child, 1991, and *A. exaggeratus* Stock, 1994. Both the latter species are much more slender and have much longer lateral processes than *A. pectinus*, although all three species have major heel spine teeth of varying numbers and have other major differences in appendage lengths and shapes. Another bizarrely attenuated new species from a different family, to be described from Okinawa, also has serrate heel spines, suggesting that these two characters are possibly linked genetically in more than one genus.

*Anoplodactylus pycnosoma?* (Helfer, 1938)

*Peritrachia pycnosoma* Helfer, 1938:176–177, fig. 7.

*Anoplodactylus pycnosoma*.—Stock, 1953a: 41, fig. 5; 1994:65, 67 [literature].

*Material examined*.—Indonesia: W Java, off Jakarta, Pulau Untongdjawa, 05°58'S, 106°42'E, coll. Taylor, 11 Oct 1938 (1 ♀).

*Distribution*.—This common intertidal Indo-Pacific species has been collected from localities circling Indonesia, but this appears to be the first capture from the many islands composing that country.

*Remarks*.—This single specimen, like many females in this difficult genus, has contradictory characters. It has angulate ventral proboscis corners like *A. pyconosoma*, but its legs and in particular the propodi are slightly longer and more slender than Helfer's species. The propodal lamina is difficult to see and appears shorter than those of *A. pycnosoma*, but the abdomen and ocular tubercle are both short as in this species. The leg segments are separated by dark brown bands as so often occurs in *A. pycnosoma*, and for the moment, I classify this female specimen as Helfer's often collected species.

*Anoplodactylus tarsalis* Stock, 1968

*Anoplodactylus tarsalis* Stock, 1968:52–54, fig. 19.—Arnaud, 1973:955.—Child, 1988a:20.—Müller, 1990a:78; 1992a:171–173, figs. 37–42.—Stock, 1992:95.

*Material examined*.—Indonesia: Java, off Jakarta, Pulau Damar-Besar, 05°58'S, 106°50'E, coll. Taylor, 30 Sep 1938 (2 ♀).

PNG: Madang, Kranket Island, inside reef, coral and algae rubble, 1.5–2.5 m, coll. Child, 28 Jul 1980 (1 ♂ with eggs). Madang, Paddock, 2nd reef past Gosem Island, rubble and sponges in 2 m, coll. Thomas & Clark, 9 Jan 1989 (1 ♂ with eggs, 2 ♂, 1 ♀, 1 Juv). Same area, in 3 m, coll. Thomas & Clark, 10 Jan 1989 (1 ♂). Same area, NW reef margin, rubble in 3 m, Thomas & Clark, 14 Jan 1989 (1 ♂, 1 ♀, 3 Lv). Madang, Yazi Reef, rubble from landward side in 1 m, Thomas & Clark, 15 Jan 1989 (3 ♂ with eggs, 2 ♂, 6 ♀, 12 Juv & Lv). Same

area, in 3 m, coll. Thomas & Clark, 15 Jan 1989 (7 specimens).

*Distribution*.—This compact tiny species has been taken in the Philippines, Madagascar, Kenya, and Oman, from littoral depths to 13 m. These records mark the first time it has been collected in either Indonesia or Papua New Guinea, but all were taken from within its known shallow depth range.

*Remarks*.—Stock (1994) found specimens of *A. pseudotarsalis* Müller (1992a) in both Indonesia and Papua New Guinea. This species is obviously very closely related to *A. tarsalis*. Comparison of the above specimens with illustrations of both species by Müller and Stock confirms that these specimens are *A. tarsalis* and not its congener. These two species are therefore sympatric, a fact which will offer future systematists a fertile field for confusion.

*Anoplodactylus tenuicarpus* Child, 1988

*Anoplodactylus attenuatus* Child, 1988a: 12–14, fig. 5; 1988b:56 [preocc. *Phoxichilidium attenuatum* Hodge, 1864]  
*Anoplodactylus tenuicarpus* n. comb. Child, 1991:142–143.—Stock, 1994:67.

*Material examined*.—PNG: Madang, Riwa Bay, cemented rubble in 0.6 m, coll. Thomas & Clark, 17 Jan 1989 (1 ♀). Port Moresby Bootless Inlet, Manunouha (Lion) Island reef, 1–2.5 m, coll. Child, 26 Jul 1980 (1 ♀).

*Distribution*.—This extremely slender species has been found at Aldabra Atoll, Indian Ocean, Indonesia, Papua New Guinea, Guam, and was described from the Philippines in 1–6 m.

*Remarks*.—Stock (1994) described another *Anoplodactylus* species, *A. exaggeratus*, which is not quite as attenuated as this species. He outlined the differences between the two species very well and I can add nothing more of any consequence. The affinity (if any) between extreme trunk and appendage attenuation and the character of

serrate propodal heel spines is discussed under *A. pectinus* in this report.

*Anoplodactylus* species indeterminate

*Material examined*.—Indonesia: W Java, Labuhan Village, on algae, 06°22'S, 105°50'E, intertidal, coll. Taylor, 17 Oct 1938 (1 juv). W Java, Pulau Damar-Besar, off Jakarta, algae, 05°58'S, 106°50'E, intertidal coll. Taylor, 30 Sep 1938 (1 larva).

PNG: near Port Moresby, Bootless Inlet, Manunouha (Lion) Island reef, rubble & algae in 1–2 m, coll. Child, 26 Jul 1980 (2 juv). Madang, Paddock Reef, rubble from NW margin in 3 m, coll. Thomas & Clark, 14 Jan 1989 (2 juv., 1 larva).

*Remarks*.—All specimens are too immature for determination.

Family Endeididae Norman, 1908

Genus *Endeis* Philippi, 1843

*Endeis biserata* Stock, 1968

*Endeis biserata* Stock, 1968:57–60, fig. 21: 1970:1; 1974:17; 1979:28–30, fig. 9.—Child, 1988a:20; 1990:332–333.—Stock, 1992:134.

*Material examined*.—PNG: Madang, Paddock Reef, 40 m off Gosem Island, rubble in 3 m, coll. Thomas & Clark, 7 Jan 1989 (1 ♀, 1 juv.)

*Distribution*.—An Indo-West Pacific species distributed from the Red Sea and Madagascar to Australia, Indonesia, and the Philippines. There is a record from Hawaii and one from Brazil, the latter suggesting that this species is possibly pantropical in distribution. It has been collected from the shore to 37 m.

*Remarks*.—These specimens have the long spines and dorsodistal tubercle of the femora as in the type description and lack the lateral intestinal caeca of other species. The propodi appear slightly longer in these specimens but they are otherwise close to the type.

*Endeis holthuisi* Stock, 1961

*Endeis holthuisi* Stock, 1961:28–29, figs. 1–6; 1968:69 [key]; 1994:68.

*Material examined*.—PNG: Madang, Kranket Island, rubble from seaward reef crest in 4 m, coll. Thomas & Clark, 11 Jan 1989 (1 ♀). Madang, patch reef between Gosem Island and Jais Aben Resort, coral rubble in 1 m, coll. Thomas & Clark, 13 Jan 1989 (1 ♀). Madang, Yazi Reef, landward side, rubble in 1 m, coll. Thomas & Clark, 15 Jan 1989 (1 ♂, 1 juv.).

*Distribution*.—Stock's distinctive species has been known only in a very restricted range: two places in NW New Guinea Island (Irian Jaya, Indonesia), in 1–7 m. This collection places it at the opposite (eastern) end of the same Island in Papua New Guinea and within its known depth range.

*Remarks*.—This species is much more compact than *E. biserata*. The legs of most other species are longer and much more slender. Both are characters which set this species apart from all Indo-Pacific members of the genus.

Family Callipallenidae Hilton, 1942

Genus *Callipallene* Flynn, 1929

*Callipallene novaezealandiae* (Thomson, 1884)

*Pallene novae-zealandiae* Thomson, 1884: 246–247, pl. 14, figs. 1–4.

*Callipallene novaezealandiae*.—Child, 1982b:277 [literature]; 1983:708; 1988a: 20.—Nakamura & Child, 1988a:664; 1991:38.—Müller, 1990b:106.—Stock, 1994:48.

*Callipallene novae-zealandiae*.—Nakamura, 1990:pl. 4, figs. 6–10.

*Material examined*.—Caroline Islands: Chuuk (Truk) Islands, eastern lagoon, islet on outer reef, rubble in 1.0–1.5 m, 07°23.8'N, 151°58.6'E, coll. Child, 2 Jul 1986 (1 ♂).

PNG: Madang, Paddock Reef, off Gosem Is., rubble in 3 m, coll. Thomas & Clark, 7 Jan 1989 (1 ♂, 2 Lv.). Madang, Paddock

Reef, near Gosem Is., sponges & rubble in 3 m, coll. Thomas & Clark, 8 Jan 1989 (1 ♂ juv., 1 ♀). Madang, Paddock Reef, rubble from NW margin in 3 m, coll. Thomas & Clark, 14 Jan 1989 (1 ♀, 2 Juv.). Madang, Yazı Reef, landward side, rubble in 1 m, coll. Thomas & Clark, 15 Jan 1989 (1 Juv.). Madang, Yazı Reef, coral rubble in 3 m, coll. Thomas & Clark, 15 Jan 1989 (1 ♀, 1 Juv.).

*Distribution.*—A widely distributed Indo-Pacific species taken from East Africa to Japan in 2–274 m.

*Callipallene* species indeterminate

*Material examined.*—PNG: Madang, Hansa Bay, Laing Island, rubble from reef in 1.0–1.5 m, coll. Child, 31 Jul 1980 (1 ♀ juv.).

*Remarks.*—The juvenile female is longer in most measurements than the previous species but lacks distinguishing characters with which to identify it.

Genus *Pallenopsis* Wilson, 1881

Subgenus (*Pallenopsis*) Stock, 1975

*Pallenopsis* (*Pallenopsis*) *hoeki* (Miers, 1884)

*Phoxichilidium hoeki* Miers, 1884:324–326, pl. 35, fig. b.

*Pallenopsis hoeki.*—Child, 1975:19 [literature].

*Material examined.*—Indonesia: Arafura Sea, Aru Archipelago, W of Wasir Island, 05°30'S, 134°12'E, 33–40 m, coll. Western Australian Museum, 15 May 1970 (2 ♂, 2 ♀, 1 Juv.).

*Distribution.*—The corridor of pycnogonid species from Australia, north through the western Pacific islands to Japan, includes this long known but seldom collected species. It has a relatively shallow depth range of 7–134 m.

*Pallenopsis* (*Pallenopsis*) *virgata* Loman, 1908

*Pallenopsis* (*Rigona*) *virgatus* Loman, 1908:69–70, pl. IX, figs. 135–136.

*Pallenopsis* (*Pallenopsis*) *virgata.*—Nakamura & Child, 1991:41 [literature].—Stock, 1991:197.

*Material examined.*—PNG: Madang, Paddock Reef near Gosem Island, from sponges and rubble in 3 m, coll. Thomas & Clark, 8 Jan 1989 (1 ♀ juv.).

*Distribution.*—This is another relatively shallow-water (20–112 m) species with a north-south distribution from Japan to the Philippines, Indonesia, and New Caledonia Islands. This specimen marks the shallowest known depth for the species.

Family Nymphonidae Wilson, 1878

Genus *Nymphon* Fabricius, 1794

*Nymphon diabolium* Child, 1988

*Nymphon diabolus* Child, 1988a:23–25, fig. 10; 1988b:75.—Nakamura & Child, 1988a:668.

*Material examined.*—Caroline Islands: Chuuk (Truk) Islands, eastern lagoon, islet on outer reef, rubble in 1.0–1.5 m, 07°23.8'N, 151°58.6'E, coll. Child, 2 Jul 1986 (1 subadult).

*Distribution.*—This recently described species was collected in the southern Philippines, and subsequently from the Ryukyu Islands and at Aldabra Atoll in the Indian Ocean, in 1–3 m. This young specimen extends its distribution eastward into the Caroline Islands.

*Remarks.*—This specimen has the same small-sized anterior appendages as the type and has the paired ocular tubercle “horns,” slender legs with few setae, chelae with moderately long teeth, long auxiliary claws in relation to the short main claw, and a terminal palp segment longer than the fourth segment. It has the usual reduced juvenile oviger with only 1 or 2 denticulate spines per strigilis segment. No other Indo-Pacific species shares this group of characters. The reduced size of its anterior in comparison to the rest of the species is its best recognition character. This specimen has a wrinkle artifact encircling its neck



which does not, under high magnification, have a segmentation line. Its anterior appendages were forced back slightly or twisted on the neck.

*Nymphon draconum* Child

*Nymphon draconis* Child, 1990:324–327, fig. 5.—Müller, 1992a:163.

*Material examined*.—Indonesia: Sulawesi, Pulau Langkai, off Ujung Pandang, in *Thalassia* and coral in 0.5 m, coll. Barnard, 6 Jul 1976 (1 juv., 1 lv.).

*Distribution*.—Australia's Great Barrier Reef (Lizard Is.) is the type locality for this species. It has also been collected at Malaysia in the Gulf of Siam. The present specimens come from an intermediate locality between the two earlier captures, but within its known depth range of 0–3 m.

*Remarks*.—The juvenile is very like the male adult except it lacks the inflated chelae, a character which is probably related to age and undoubtedly related to sex. The species belongs to the *N. aequidigitatum* group of species (Child, 1988b) which share inflated male chelae, a reduced main propodal claw with larger auxiliaries, bifurcate chelae teeth, a longer than usual terminal palp segment, and an oviger claw which usually lacks teeth.

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the remaining specimens are deposited in the collections of the National Museum of Natural History, Smithsonian Institution.

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